

ABSTRACT

A XLANG/s compilation method is provided that uses data flow analysis of a program's flow graph to determine lifetimes of a data object. A flowgraph is created according to abstract computer instructions. A depth-first order is assigned to basic blocks and a dominance relationship between the basic blocks is determined. A determination is made as to whether any loops are present within the flowgraph and, if so, the loops are identified. A creation point, destruction point and lock point for the data object is determined. Instructions are inserted into the computer code to create the at least one data object at the creation point, to destroy the data object at the destruction point and to lock the data object at the lock point.